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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,680	08/08/2006	Thorsten Schwenke	047940-0278	9237

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EXAMINER	
KOSAR, AARON J	

ART UNIT	PAPER NUMBER
1651	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,680	SCHWENKE, THORSTEN	
	Examiner	Art Unit	
	AARON J. KOSAR	1651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-21 and 30-47* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-21 and 30-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/15/06; 06/06/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election *without traverse* of Group VII (claims 19-21, method of using) in the reply filed on August 22, 2008 is acknowledged. The election/restriction is still deemed proper and therefore is made Final.

Applicant has amended the claims by canceling claims 1-18 and 22-29 and introducing new claims 30-47. **Claims 19-21 and 30-47** are pending and have been examined on the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 19-21 and 30-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over COHEN (**G**:PTO-892: US 7,251,893 B2) in view of BODANSZKY (**H**:PTO-892: US 3,373,151) and LOU (**I**:PTO-892: US 4329151 A) and MOHAN (**W**:PTO-892: Mohan, C. Buffers: A Guide for the Preparation and Use of Buffers in Biological Systems. CALBIOCHEM/EMD Biosciences, 2003, pages i-iv and 1-32.) and GOLDRICK (**J**:PTO-892: US 5,891,629) and RAAD (**K**:PTO-892: US 6,165,484)

The claims are generally drawn to a method comprising applying to an implant an artificial synovial fluid, the fluid comprising serum, a chelator, an aqueous buffer, and optionally an antibiotic. The dependent claims are further drawn to species combinations and ranges of serum, including bovine calf serum; chelator, including EDTA or EGTA; aqueous buffer, including phosphate-buffered saline or Tris buffer; and antibiotic, including Patricin A or sodium azide.

COHEN (**G**) teaches a wear testing method comprising surrounding materials with water, bovine calf serum, or synovial joint fluid (e.g. claims 1, 29, and 30). Cohen further teaches the use and wear-prevention of a simulated joint fluid, comprising water and bovine calf serum, in compositions capable of performing in prostheses. Cohen also teaches the combination of bovine calf serum, EDTA, and sodium azide, teaching,

> *bovine calf serum is routinely used as the lubricant to simulate the presence of joint synovial fluid. The lubricant solution normally contains EDTA to retard protein precipitate formation (See V. K. Polineni, A. Wang, A. Essner, C. Stark and J. H. Dumbleton, Effect of lubricant protein concentration on the wear of UHMWPE acetabular cups against cobalt-chrome and alumina femoral heads, 23rd Annual Meeting of the Society for Biomaterials, New Orleans, La., U.S.A., 1997); also, sodium azide serves as an antibacterial agent.* (column 12, ¶1; see also column 19, lines 57-58).

Cohen further teaches the general benefit of providing bovine calf serum; diluting the serum 3-fold with deionized water; and providing a final composition comprising 20mM of EDTA (20mM*292.24g/mol = 0.6%(w/w) EDTA) which is both a chelate and a carboxylate-containing buffer, and 0.2% (w/w) sodium azide (e.g. example 1, column 24, ¶1). Additionally the composition provides a pH of around 7; ionic strength and pH are "carefully considered" in the selection of a pH system ("choice of a polyelectrolyte assembly pH") which intrinsically comprises inorganic salts (column 12, ¶1).

BODANSZKY (**H**) teaches that Patricin A is useful as an antibiotic, including against *B.subtilis, S. aureus*, and *Streptococci*, including *S. lactis* (column 2, ¶5).

LOU (**I**) teaches that sodium azide is useful as a bacteriostatic agent having useful concentration range of 0.502.0% (w/v) (column 5, lines 60-62).

MOHAN (**W**) teaches compositions having pH of approximately 7, including Tris and phosphate-buffered saline (PBS) having pHs of 7.4 (page 7, table 1; page 20, §6-7; page 22-23) similar to that of plasma/serum (plasma pH = 7.35-7.45: page 26, 2nd table).

GOLDRICK (**J**) and RAAD (**K**) teach that EDTA and EGTA are chelators of metal ions. Goldrick further teaches chelation of divalent cations (M^{+2}) wherein EGTA is preferential to calcium ions ($M^{+2} = Ca^{+2}$) (J: column 9, ¶2) and Raad further teaches that EDTA and EGTA and their metal (M^{+n}) salts function as chelators (K: column 2, ¶ 3 and 7).

To the extent that Cohen may be silent versus the instant claimed ranges/concentrations with respect to using a particular concentration of components, absent evidence to the contrary, it would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made to have optimized the concentration for each of the components whose general benefit in the composition and concentrations thereof are taught by Cohen and by Lou. Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller,* 220 F.2d 454, 456, 105 USPQ 233, 235.

To the extent that Cohen may teach EDTA though silent with respect to select species of chelator, it would have been obvious to have used EGTA, because were known, as taught by GOLDRICK/RAAD (J,K *supra*). One would have been motivated to have used EGTA in the invention of Cohen, because Cohen teaches the general benefit of EDTA and because Goldrick/Raad teach that EDTA is a provided to compositions as a chelator, whereby EGTA is known to be useful for the same intended purpose/function and because EGTA and EDTA have the same core N,N,N',N'-tetraacetic acid structure. Thus one would have had a reasonable expectation of success in substituting/supplementing an EDTA composition with an EGTA composition, because the compositions would be expected to provide similar compositions having known similar, predictable function, especially in the absence of the criticality of some undisclosed feature or in the absence of objective evidence to the contrary.

To the extent that Cohen may be silent with respect to a particular buffer, it would have been obvious to have selected a buffer because buffers were known to one in the art and routinely used at the time of the invention as taught by Mohan. One would have been motivated to have used a buffer, because Cohen teaches the general benefit of providing an aqueous composition and maintaining a pH at physiological pH conditions, including providing of a pH around 7 and because Mohan teaches that buffers are useful in providing in aqueous systems a resistance to pH influences internally and externally (e.g. page 8, ¶1). One would have been further motivated to have selected PBS or Tris buffer, because Mohan teaches that Tris and PBS buffers have pHs of 7.4 which is within the range of plasma pH and which is approximately the physiological pH of the composition taught by Cohen. One would have had a reasonable expectation of success in providing a buffer, because success merely requires contacting a buffer in the known and intended use of providing pH maintenance to aqueous systems in the physiological/biologically-relevant range, especially in the absence of evidence to the criticality of some undisclosed feature(s) or objective evidence to the contrary.

To the extent that Cohen may be silent with respect to a particular antibiotic, it would have been obvious to have selected an antibiotic because antibiotics were known to one in the art and routinely used at the time of the invention as taught by Bodanszky and Lou. One would have been motivated to have used an antibiotic, because Cohen teaches the general benefit of providing sodium azide and because Lou teaches that sodium azide is useful for the purpose of a bacteriostat (antibiotic). One would have been further motivated to have selected sodium azide or Patricin A, because Cohen/Lou teach using sodium azide and because Bodanszky teaches that Patricin A is useful for the same purpose, as an antibiotic. Thus one desiring to provide antibiotic

character to a composition would have had a reasonable expectation of success in providing/substituting a known Patricin A or sodium azide for the known and predictable purpose as an antibiotic, and especially in the absence of evidence to the criticality of some undisclosed feature(s) or objective evidence to the contrary.

Cohen is relied upon for the reasons discussed above. If not expressly taught by Cohen, based upon the overall beneficial teaching provided by this reference (e.g. in that "interfacial wear debris may contribute appreciably to the total friction coefficient" (column 1, ¶2) and that serum-containing compositions are pH dependent (a value which as taught by Mohan (W: page 12) is temperature-dependent), in the manner disclosed therein, the adjustments of particular conventional working conditions, is deemed merely a matter of judicious selection and routine optimization which is well within the purview of the skilled artisan, especially in the absence of objective evidence of the criticality or evidence to the contrary.

From the teachings of the reference, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a). From the teachings of the

references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of objective evidence to the contrary.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

MINEVSKI (**A-D**:PTO-892: US 2004/0053197 A1 through US 2004/0053199, and US 2004/0121290 A1) *teach serum with the use of EDTA chelating agent and the measurement of corrosion and wear upon metal or UHMWPE compositions, including pin-on-disk experiments.*

BURDICK (**E**:PTO-892: US 6,800,298 B1) *teaches adding an artificial synovial fluid to a joint simulator, said joint comprising rigid bearings or a pin-on-plate. Burdick further teaches testing the boundary lubricant rheological properties of the fluid and evaluating wear by SEM examination of surface topography (e.g. column 8, ¶1 and 4).*

RUBIN (**F**:PTO-892: US 6475753 B1) *teaches calf serum, rinsed with phosphate-buffered saline (PBS).*

COHEN (**L**:PTO-892: US 2008/0228280 A1) *is considered redundant to the teachings of COHEN (G), supra.*

YOKOBORI (**U**:PTO-892: Yokobori, A.T., et al "Mechanical Test Method on the Estimation of the Lubricant Performance by Hyaluronic Acid", Bio-Medical Materials and Engineering. 1995, 5(2), pages 117-124.*) teaches providing an artificial synovial fluid consisting essentially of aqueous hyaluronic acid (HA) to an artificial joint and evaluating the performance thereof, including assessment of articular lubrication..*

WRIGHT (**V**:PTO-892: Wright, V., et al "Bio-Engineering Aspects of Synovial Fluid and Cartilage", Modern Trends in Rheumatology. 1971, 2, pages 21-29.*) teaches that synovial fluid comprises a dialysate of blood plasma and a variable amount of protein and mucopolysaccharide, hyaluronic acid (page 26-7). Wright further teaches the rheological testing of synovial fluid and the criteria for in vivo use of the artificial lubricant (e.g. Table I).*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON J. KOSAR whose telephone number is (571)270-3054. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday,EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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